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**Term:** (vector same (vertex or vertices or vertexes) same polygon same (child or hierarchy or hierarchical)) and mesh

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| L2 | (vector same (vertex or vertices or vertexes) same polygon same (child or hierarchy or hierarchical)) and mesh | 3 | L2 |
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Published before April 1999
Terms used
**vector PARAGRAPH vertex** OR **vertices** OR **vertexes PARAGRAPH polygon** AND **mesh**

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Relevance scale

1 The visibility skeleton: a powerful and efficient multi-purpose global visibility tool

Frédo Durand, George Drettakis, Claude Puech

August 1997 **Proceedings of the 24th annual conference on Computer graphics and interactive techniques**

Full text available: pdf(444.91 KB) Additional Information: full citation, references, citings

**Keywords**: aspect graph, discontinuity meshing, extremal stabbing lines, form factor calculation, global illumination, global visibility, view calculation, visibility

2 MAPS: multiresolution adaptive parameterization of surfaces

Aaron W. F. Lee, Wim Sweldens, Peter Schröder, Lawrence Cowsar, David Dobkin

July 1998 **Proceedings of the 25th annual conference on Computer graphics and interactive techniques**

Full text available: pdf(5.40 MB) Additional Information: full citation, references, citings, index terms

**Keywords**: loop scheme, mesh simplification, meshes, multiresolution, remeshing, subdivision surfaces, surface parameterization, texture mapping

3 An aspect ratio bound for triangulating a d-grid cut by a hyperplane (extended abstract)

Scott A. Mitchell, Stephen A. Vavasis

May 1996 **Proceedings of the twelfth annual symposium on Computational geometry**

Full text available: pdf(889.75 KB) Additional Information: full citation, references, citings, index terms

4 Interval methods for multi-point collisions between time-dependent curved surfaces

John M. Snyder, Adam R. Woodbury, Kurt Fleischer, Bena Currin, Alan H. Barr

September 1993 **Proceedings of the 20th annual conference on Computer graphics and interactive techniques**

Full text available: pdf(422.51 KB) Additional Information: full citation, references, citings, index terms

**Keywords**: inclusion function, interval Newton method, interval linear equation

5 Dimension-independent modeling with simplicial complexes

A. Paoluzzi, F. Bernardini, C. Cattani, V. Ferrucci

January 1993 **ACM Transactions on Graphics (TOG)**, Volume 12 Issue 1

Full text available: pdf(4.91 MB) Additional Information: full citation, references, citings, index terms, review

**Keywords**: n-dimensional triangulation, Boolean operations, design languages, extrusion, polyhedra, representation, simplicial complexes, simplicial maps

6 Visibility-ordering meshed polyhedra

Peter L. Williams

April 1992 **ACM Transactions on Graphics (TOG)**, Volume 11 Issue 2

Full text available: pdf(1.83 MB) Additional Information: full citation, abstract, references, citings, index terms, review

A visibility-ordering of a set of objects from some viewpoint is an ordering such that if object a obstructs object b, then b precedes a in the ordering. An algorithm is presented that generates a visibility-ordering of an acyclic convex set of meshed convex polyhedra. This algorithm takes time linear in the size of the mesh. Modifications to this algorithm and/or preprocessing techniques are described that permit nonconvex ...

**Keywords**: Delaunay triangulation, depth ordering, finite element methods, mesh generation, point location, scattered data, scientific visualization, triangulation, visibility ordering, volume rendering, volume visualization

7 Technical reports

SIGACT News Staff

January 1980 **ACM SIGACT News**, Volume 12 Issue 1

Full text available: pdf(5.28 MB) Additional Information: full citation

8 Polygon-assisted JPEG and MPEG compression of synthetic images

Marc Levoy

September 1995 **Proceedings of the 22nd annual conference on Computer graphics and interactive techniques**

Full text available: pdf(2.14 MB) ps(77.36 KB) Additional Information: full citation, references, citings, index terms

**Keywords**: JPEG, MPEG, client-server graphics, polygon-assisted compression

9 An interactive computer graphics approach to surface representation

Sheng-Chuan Wu, John F. Abel, Donald P. Greenberg

October 1977 **Communications of the ACM**, Volume 20 Issue 10

Full text available: pdf(1.27 MB) Additional Information: full citation, abstract, references, citings

An interactive computer graphics method has been developed for the rapid generation of arbitrary shaped three-dimensional surfaces. The method is a synthesis of spline theory and algorithms, an interactive means for man-machine communication, and software for static or dynamic graphics display. The basic technique employed is a modified lofting method in which sectional curves are represented by uniform B-splines and the surface is interpolated between sections by Cardinal splines. Among th ...

**Keywords**: computer graphics, finite element input methods, lofting, splines, three-dimensional surface representation

10 A multiresolution framework for variational subdivision

Leif Kobbelt, Peter Schröder

October 1998 **ACM Transactions on Graphics (TOG)**, Volume 17 Issue 4

Full text available: pdf(203.59 KB) Additional Information: full citation, abstract, references, citings, index terms

Subdivision is a powerful paradigm for the generaton of curves and surfaces. It is easy to implement, computationally efficient, and useful in a variety of applications because of its intimate connection with multiresolution analysis. An important task in computer graphics and geometric modeling is the construction of curves that interpolate a griven set of points and minimize a fairness functional (variational design). In the context of subdivision, fairing leads to special schemes requiri ...

**Keywords**: lifting scheme, subdivision, variational modeling, wavelets

11 Direct construction of polynomial surfaces from dense range images through region growing

Nickolas S. Sapidis, Paul J. Besl

April 1995 **ACM Transactions on Graphics (TOG)**, Volume 14 Issue 2

Full text available: pdf(7.89 MB) Additional Information: full citation, references, citings, index terms

12 A Delaunay based numerical method for three dimensions: generation, formulation, and partition

Gary L. Miller, Dafna Talmor, Shang-Hua Teng, Noel Walkington

May 1995 **Proceedings of the twenty-seventh annual ACM symposium on Theory of computing**

Full text available: pdf(1.19 MB) Additional Information: full citation, references, citings, index terms

13 Domain Delaunay Tetrahedrization of arbitrarily shaped curved polyhedra defined in a solid modeling system

Nickolas S. Sapidis, Renato Perucchio

May 1991 **Proceedings of the first ACM symposium on Solid modeling foundations and CAD/CAM applications**

Full text available: pdf(1.35 MB) Additional Information: full citation, references, citings, index terms

14 An approach to 3D pose determination

Norberto Ezquerra, Rakesh Mullick
April 1996 **ACM Transactions on Graphics (TOG)**, Volume 15 Issue 2

Full text available: pdf(5.58 MB) Additional Information: full citation, abstract, references, index terms, review

The orientation, or pose, of an object is a fundamental property that helps to define the geometrical relationship between the object and its environment. In addition, knowledge of object orientation can also facilitate interpretive and decision-making tasks in a variety of practical domains, including industrial, meteorological, and medical applications. Determining object pose, however, remains an open research question in the fields of graphics and visualization. This article describes a ...

**Keywords**: axis of orientation, geometry, orientation determination, pose determination

15 Model-based recognition of arbitrary surfaces from range data

Jeffrey A. Bloom, Chang Y. Choo, William I. Kwak
June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available: pdf(696.20 KB) Additional Information: full citation, abstract, references, index terms

Recognition of arbitrary surfaces is a difficult and largely unsolved problem in computer vision. In this paper, we present a technique to develop a piecewise planar, triangular patch model of an object surface from its range data, and a recognition technique to be used with this model. A large set of object surface data points are segmented into triangular patches using a small number of knot points. The recognition technique extracts and stores in the form of attributed connection graph t ...

16 Constrained 3D navigation with 2D controllers

Andrew J. Hanson, Eric A. Wernert
October 1997 **Proceedings of the 8th conference on Visualization '97**

Full text available: pdf(1.08 MB) Publisher Site Additional Information: full citation, references, citings, index terms

**Keywords**: camera control, constrained navigation, navigation, viewing control

17 Feature-based volume metamorphosis

Apostolos Lerios, Chase D. Garfinkle, Marc Levoy
September 1995 **Proceedings of the 22nd annual conference on Computer graphics and interactive techniques**

Full text available: pdf(313.03 KB) Additional Information: full citation, references, citings, index terms

**Keywords**: blending, computer animation, rendering, sculpting, shape interpolation, transformation, volume morphing, warping

18 Procedural texture mapping on FPGAs

Andy G. Ye, David M. Lewis
February 1999 **Proceedings of the 1999 ACM/SIGDA seventh international symposium on Field programmable gate arrays**

Full text available: pdf(1.05 MB) Additional Information: full citation, references, index terms

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```
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Trying 31060000009998...Open

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PLEASE LOGON:
 ********
ENTER PASSWORD:
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Welcome to DIALOG

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Last logoff:  02dec04 17:10:05
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* * *

File   1:ERIC 1966-2004/Jul 21
       (c) format only 2004 The Dialog Corporation

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Cost is in DialUnits
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       17dec04 11:33:35 User259941 Session D162.1
            $0.39    0.111 DialUnits File1
     $0.39  Estimated cost File1
     $0.39  Estimated cost this search
     $0.39  Estimated total session cost   0.111 DialUnits

File 410:Chronolog(R) 1981-2004/Nov
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      Set  Items  Description
      ---  -----  -----------
? set hi ;set hi
HILIGHT set on as ''
HILIGHT set on as ''
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? b 2 6 8 34 35 47 62 65 92 94 98 99 103 113 115 144 202 233 239 248 256 275 295
344 345 347 370 371 434 647 674 696
       17dec04 11:37:24 User259941 Session D162.2
            $0.00    0.102 DialUnits File410
     $0.00  Estimated cost File410
     $0.99  TELNET
     $0.99  Estimated cost this search
     $1.38  Estimated total session cost   0.213 DialUnits

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  File   2:INSPEC 1969-2004/Dec W1
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File 344:Chinese Patents Abs Aug 1985-2004/May
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(c) 2004 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
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| Set | Items | Description |
|---|---|---|
| ? s (vector(s)(vertex or vertices or vertexes)(s)polygon) and mesh | | |
| | 789187 | VECTOR |
| | 102150 | VERTEX |
| | 77129 | VERTICES |
| | 2299 | VERTEXES |
| | 39845 | POLYGON |
| | 157 | VECTOR(S)((VERTEX OR VERTICES) OR VERTEXES)(S)POLYGON |
| | 192709 | MESH |
| S1 | 13 | (VECTOR(S)(VERTEX OR VERTICES OR VERTEXES)(S)POLYGON) AND MESH |

? t s1/k/all

1/K/1 (Item 1 from file: 2)
DIALOG(R)File 2:(c) 2004 Institution of Electrical Engineers. All rts. reserv.

...Abstract: In this paper, we present a solution to this problem for surfaces defined by dense ***polygon*** meshes. Our solution extends Wei and Levoy's (2000) texture synthesis method by generalizing their definition of search neighborhoods. For each ***mesh*** ***vertex*** , we establish a local parameterization surrounding the **vertex**, use this parameterization to create a small rectangular neighborhood with the **vertex** at its center, and search a sample texture for similar neighborhoods. Our algorithm requires as...

... texture and a target model. Notably, it does not require specification of a global tangent **vector** field; it computes one as it goes-either randomly or via a relaxation process. Despite...
...Identifiers: ***mesh*** vertex

1/K/2 (Item 2 from file: 2)
DIALOG(R)File 2:(c) 2004 Institution of Electrical Engineers. All rts. reserv.

Abstract: We present tools for 3D object retrieval in which a model, a polygonal **mesh** , serves as a query and similar objects are retrieved from a collection of 3D objects...

...those derived from normalized models in the search space. Using a metric in the feature **vector** space nearest neighbors are computed and ranked. Objects thus retrieved are displayed for inspection, selection...

... pose estimation we introduce a modified Karhunen-Loeve transform that takes into account not only **vertices** or **polygon** centroids from the 3D models but all points in the polygons of the objects. Some...
...Identifiers: polygonal ***mesh*** ;

1/K/3 (Item 3 from file: 2)
DIALOG(R)File 2:(c) 2004 Institution of Electrical Engineers. All rts. reserv.

Abstract: In order to achieve the impression of a smooth surface while rendering a **polygon mesh**, normal **vector** vectors may be provided in the **vertices** of the **mesh** that are the average of the surface normals of the adjacent polygons. Interpolation of these normal vectors while rendering of the polygons in the **mesh**, and using the interpolated normal vectors in the shading computations, yields a smoothly varying intensity...

... visible at silhouettes, showing as straight edges and non-smooth edge junctions at the silhouette ***vertices*** . A remedy for these artefacts is suggested. The remedy consists of subdividing each input ***polygon*** into a ***mesh*** of polygons prior to rendering. The shape of this resulting **polygon mesh** is controlled by the normal vectors that are provided in the **vertices** of the original **polygon**, unlike other subdivision schemes that make use of adjacent polygons. With the method, polygons equipped with **vertex** normal vectors can therefore be processed without further knowledge of neighbour polygons. This makes the ...

... the context of graphics libraries, such as OpenGl, that treat polygons typically on a per- ***polygon*** basis. So the proposed computation of the **mesh** which replaces the original **polygon** can be viewed as a filter which may operate as a process in front of a traditional ***polygon*** rendering pipeline.
...Identifiers: polygon ***mesh*** rendering...

...polygon ***mesh*** shape...

1/K/4 (Item 1 from file: 8)
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Abstract: We present tools for 3D object retrieval in which a model, a polygonal **mesh**, serves as a query and similar objects are retrieved from a collection of 3D objects...

...those derived from normalized models in the search space. Using a metric in the feature **vector** space nearest neighbors are computed and ranked. Objects thus retrieved are displayed for inspection, selection...

...pose estimation we introduce a modified Karhunen-Loeve transform that takes into account not only **vertices** or **polygon** centroids from the 3D models but all points in the polygons of the objects. Some...

1/K/5 (Item 2 from file: 8)
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...Abstract: In this paper, we present a solution to this problem for

surfaces defined by dense ***polygon*** meshes. Our solution extends Wei and Levoy's texture synthesis method by generalizing their definition of search neighborhoods. For each ***mesh*** ***vertex*** , we establish a local parameterization surrounding the **vertex**, use this parameterization to create a small rectangular neighborhood with the **vertex** at its center, and search a sample texture for similar neighborhoods. Our algorithm requires as...

...texture and a target model. Notably, it does not require specification of a global tangent **vector** field; it computes one as it goes - either randomly or via a relaxation process. Despite...

1/K/6 (Item 3 from file: 8)
DIALOG(R)File 8:(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

Abstract: In order to achieve the impression of a smooth surface while rendering a **polygon mesh**, normal **vector** vectors may be provided in the **vertices** of the **mesh** that are the average of the surface normals of the adjacent polygons. Interpolation of these normal vectors while rendering of the polygons in the **mesh**, and using the interpolated normal vectors in the shading computations, yields a smoothly varying intensity...

...visible at silhouettes, showing as straight edges and non-smooth edge junctions at the silhouette ***vertices*** . In this paper, a remedy for these artefacts is suggested. The remedy consists of subdividing each input ***polygon*** into a ***mesh*** of polygons prior to rendering. The shape of this resulting **polygon mesh** is controlled by the normal vectors that are provided in the **vertices** of the original **polygon**, unlike other subdivision schemes that make use of adjacent polygons. With our method, polygons equipped with ***vertex*** normal vectors can therefore be processed without further knowledge of neighbour polygons. This makes the...

...the context of graphics libraries, such as OpenGl, that treat polygons typically on a per- ***polygon*** basis. So the proposed computation of the **mesh** which replaces the original **polygon** can be viewed as a filter which may operate as a process in front of a traditional ***polygon*** rendering pipeline. (Author abstract) 11 Refs.

1/K/7 (Item 1 from file: 47)
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... a block. One problem: PROJECT doesn't work with all entity types-3-D entities ***mesh*** and extruded surfaces are excluded. As a result, you end up recreating portions of the...command creates the basic AutoCAD 3-D surface entity, an opaque 3- or 4-sided ***polygon*** . REVSURF creates a surface of revolution by swinging a polyline around an axis. TABSURF creates a tabulated surface by sweeping a profile curve along the length of a direction ***vector*** . RULESURF creates a surface between two curves in space and EDGESURF creates a Coons patch...

...the 3DMESH command to create contoured surfaces by defining meshes of points to serve as **vertices** and applying built-in smoothing algorithms to round the rough edges.
The only problem is...

1/K/8 (Item 1 from file: 94)
DIALOG(R)File 94:(c)2004 Japan Science and Tech Corp(JST). All rts. reserv.

...ABSTRACT: developed, but they have some problems. Most of them transform the contour map data into **mesh** data, and contains the data of all ***mesh*** polygons. Furthermore each ***mesh*** is divided into two triangles to deal with them as planer polygons. Those kinds of systems need huge area of memory. Another problem is the difficulty in overlapping the **vector** data which represent roads, sites and so on with the ***mesh*** data precisely. To solve those problems, a new landscape simulation system has been developed which...

...generates three dimensional view of the synthesis of these data. Three types of data are **mesh** data which is made from a contour map, **vector** data which represents the elements like roads and sites on the map, and data of...

...buildings, street furniture, and so on. 2. This system does not keep data of all **mesh** polygons, but calculates xyz-coordinates of each **vertex** and the plane equation of a **mesh** unit in case of necessity. So this system can minimize the amount of data of ***mesh*** polygons when the map is divided into a lot of meshes. The system contains the data of only one ***mesh*** ***polygon*** at one time. (author abst.)

1/K/9 (Item 1 from file: 99)
DIALOG(R)File 99:(c) 2004 The HW Wilson Co. All rts. reserv.

...ABSTRACT: closely related to Phong shading are discussed. An algorithm to obtain normal vectors in the **vertices** of a **polygon** **mesh** that are suitable for normal **vector** interpolation is presented. In addition, a modification to normal ***vector*** interpolation, which replaces the traditional linear interpolation by a quadratic interpolation, is proposed. This will allow ***polygon*** models of curved surfaces to be coarser without the risk of inconsistencies between the shape...

1/K/10 (Item 1 from file: 239)
DIALOG(R)File 239:(c) 2004 American Mathematical Society. All rts. reserv.

...of $\Bbb{R}$. Let us denote by $\Omega \sb {h}$ the domain bounded by the **polygon** $\Gamma \sb {0,h}$ with the **vertices** $\{\bold{x}(t\sb {i});\ i=1,2,\dots ,N\}$ and the polygonal boundary $\Gamma...

...such that $h\sb {T}\equiv{\rm diam}(T)\leq Ch$ and such that any **vertex** of a triangle lying on $\Gamma \sb {0,h}$ coincides with some $\bold{x}(t...

...each triangle $T\in \tau \sb {h}$, the authors consider the following 9D space of ***vector*** -fields $\bold{P}(T)$ introduced by C. Bernardi and G. Raugel in 1985 [see, e...normal to the edge $f\sb {i,T}$ of the triangle $T$ opposite to the ***vertex*** $a\sb {i,T}$. The global finite element space for the velocity is given by...

...W\sb {h}$, $\gamma \sb {h}\bold{v}$ is the $1$-periodic and piecewise linear **vector** function uniquely defined by the $N$ interpolation conditions: $$ (\gamma \sb {h}\bold{v})(t\sb...

...dots ,N.\tag{14} $$ Thus $\gamma \sb {h}\bold{v}$ may be regarded as a ***vector*** function defined on $\Gamma \sb {0}.$
The third step is the obtaining of a fully...test, the authors report in a first table their test of the influence of the **mesh** parameter $h$ on the error and the behavior of the iterative method (21)--(24). The...

1/K/11 (Item 1 from file: 275)
DIALOG(R)File 275:(c) 2004 The Gale Group. All rts. reserv.

... a block. One problem: PROJECT doesn't work with all entity types-3-D entities ***mesh*** and extruded surfaces are excluded. As a result, you end up recreating portions of the...command creates the basic AutoCAD 3-D surface entity, an opaque 3- or 4-sided ***polygon*** . REVSURF creates a surface of revolution by swinging a polyline around an axis. TABSURF creates a tabulated surface by sweeping a profile curve along the length of a direction ***vector*** . RULESURF creates a surface between two curves in space and EDGESURF creates a Coons patch...

...the 3DMESH command to create contoured surfaces by defining meshes of points to serve as **vertices** and applying built-in smoothing algorithms to round the rough edges.
The only problem is...

1/K/12 (Item 2 from file: 275)
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... to ten times that of the SRX can be achieved. One higher-level function, quaadrilateral **mesh**, allows the vertices of adajacent quadrilaterals to be transformed, clipped, and lighted a single time...

...poit bus for accelerated transformation, clipping, lighting, and parametric surface calculations. The connection to the ***polygon*** -rendering chip is through a double-buffered RAM containing **polygon** and ***vector*** ***vertex*** addresses, z values, and color data.
Z-Buffer
Once the transform-engine bottleneck was improved...

1/K/13 (Item 3 from file: 275)
DIALOG(R)File 275:(c) 2004 The Gale Group. All rts. reserv.

... to render many polygons with one function call. Because many applications generate surfaces as a **mesh** of polygons that share vertices, these new primitives make it possible for the application program light intensities typical to each **vertex** and attaches them to the ***polygon*** 's definition. To speed this operation, a specialized cosine processor calculates the inner products of two vectors resulting in the eye point and lighting **vector**, as well as the **vertex** normal ***vector*** products. The processor runs at a sustained rate of 60,000 pixels/s per Phong...
?
Connection closed by remote host

```
Connecting via Winsock to Dialog


Logging in to Dialog

Trying 31060000009998...Open

DIALOG INFORMATION SERVICES
PLEASE LOGON:
 ********
ENTER PASSWORD:
 ********
Welcome to DIALOG

Dialog level 04.20.00D

Last logoff:  17dec04 12:21:23
Logon file001 17dec04 12:22:16
* * *

File   1:ERIC 1966-2004/Jul 21
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      Set  Items  Description
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Cost is in DialUnits
? b 410
       17dec04 12:22:16 User259941 Session D163.1
            $0.36    0.104 DialUnits File1
     $0.36  Estimated cost File1
     $0.36  Estimated cost this search
     $0.36  Estimated total session cost   0.104 DialUnits

File 410:Chronolog(R) 1981-2004/Nov
       (c) 2004 The Dialog Corporation

      Set  Items  Description
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? set hi ;set hi
HILIGHT set on as ''
HILIGHT set on as ''
? b 2 6 8 34 35 47 62 65 92 94 98 99 103 113 144 202 233 239 248 256 275 295 344
345 347 370 371 434 647 674 696
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